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ABSTRACT

The first major objective of this paper is to describe in some detail the research that documents the proposition that even extremely disadvantaged 5-year-olds can be taught to read in kindergarten, and that, contrary to popular belief, there is no evidence of negative side effects from such teaching. The paper also describes an effective academic component of a kindergarten in order to provide a standard by which early childhood educators can assess the productivity of an academic component and its sensitivity to students' needs. It is argued that kindergarten programs should contain an academic component coupled with a range of other developmentally appropriate activities and projects. The paper covers misconceptions about academic kindergarten, conceptions of an academic program, components of the academic kindergarten in Project Follow Through, relevant research, factors contributing to program success, systematic transition from preschool to elementary school, unique features of the curriculum, highly interactive teaching strategies, and teacher training and the evolution of teacher attitudes. It is concluded that results of the studies reviewed indicate that reading can be taught to virtually all kindergarten students, regardless of their scores on readiness tests or the limitations of their home backgrounds. (RH)

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Content and Orientation of Kindergarten Curriculum for At-Risk Students.

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In 1987, the Association for Supervision and Curriculum Development (ASCD) convened a task force of prominent early childhood educators to address issues in the public school education of four- and five-year-olds. As can easily be imagined, one of the most controversial issues discussed was whether or not reading and other academic subjects should be directly taught to kindergarten students, especially those low income, "at risk" students who enter school with limited experience with books and academic concepts.

A debate raged, with some arguing that forcing academic content on these unsuspecting, "unready" students could create a lifelong aversion to learning. They argued for a "developmental", low key curriculum that put few demands on these students. A recent survey conducted of elementary principals (ERS, 1986) found that only 22 percent saw academics as the primary focus of kindergarten. Half the principals felt reading should be taught only to students who demonstrate they are ready and able.

Others, including the senior author of this chapter, argued that it is imperative to teach reading and mathematics to these students at an early age so that they could compete with their middle class peers in the elementary grades. They cited research and experiences demonstrating that reading could be taught to low income "at risk" 5-year-olds with no apparent negative side effects.

After listening to both sides of the debate and reviewing the research, the Task Force finally reached a compromise, concluding:

"Although most five-year-olds *can* learn to read, the question that requires conscious decision making at the local level is whether they *should* learn to read (ASCD Task Force, p.108)."

This chapter has several major objectives. The first is to describe in some detail the research that documents that even extremely disadvantaged 5-year olds can be taught to read in kindergarten, and that--contrary to popular belief--there is no evidence of negative side effects. In fact, there is some preliminary evidence suggesting enduring positive effects on the students' later lives.

The second is to describe what an effective academic component of a kindergarten is like, to give those in early childhood education a guideline or standard by which they can assess whether the academic component of a kindergarten is productive, is sensitive to the needs of the students. The final objective is to argue that a kindergarten program can and should contain an academic component coupled with a range of other developmentally appropriate activities and projects.

A review of the early childhood education literature reveals that those who object to teaching academic content in kindergarten (Katz, 1988; Weikert, 1988) often create an either/or dichotomy by

assuming that academic kindergarten programs automatically ignore children's social and emotional needs and that time allocated to reading and language precludes time for social interaction and play. We believe such a dichotomy need not exist. The functions of gaining knowledge and socialization are not mutually exclusive.

Misconceptions about Academic Kindergarten

Some educators propose that the primary focus of kindergarten programs for all students--including those who enter with weak language skills and low academic readiness, should be on building a strong knowledge base in oral language, reading, mathematics, and listening comprehension. A major goal of a kindergarten program should be to prepare these students to enter first grade with knowledge base in reading, mathematics, and language concepts as children not at-risk.

There are several misconceptions about academically-oriented programs that need to be disspelled. The first is that students in academic kindergartens are primarily passive. Nothing could be further from the truth. Though five-year-olds are not asked to articulate the objectives of each day's lesson, and the teacher, not the child, determines the sequence of instruction, students are extremely active in academic early childhood programs. The majority of instruction is conducted in small groups; students

constantly respond to teachers' questions and each others' comments. The structure of academically-focused programs insures that students will receive clear and immediate feedback from the teacher, and be provided with additional practice, if necessary.

A second misconception is that students spend all their time filling out worksheets, and no time interacting with other students and teachers. Again, this is not true. The majority of instruction is done in small groups, involving constant interaction. Only a small amount of followup worksheet activities are included.

Two other misconceptions prevail. The first, articulated by psychologists such as David Elkind (1988), is that academic programs can destroy a child's pleasure in reading. Only inept academic programs do so. Intelligent academic programs include a blend of a oral reading (including listening to stories read by teachers), and systematic practice in sounding out words. The final misconception is that academically-focused programs preclude time for play, socialization and art. Again, this need not be the case.

This chapter describes a kindergarten program that successfully promotes acquisition of knowledge in reading, language, and mathematics while also enabling students to develop socially. We present findings from research that document both the immediate and long-term benefits of an academic kindergarten approach.

To the best of our knowledge, no research formally and rigorously compares and evaluates specific approaches towards teaching low-income kindergartners. Our goal is to describe and document an approach that has been effective in accelerating the academic progress of disadvantaged students and to explain components of the program that led to its success. We conclude with a discussion of what we see as critical issues in developing and implementing effective academic kindergarten programs especially geared for at risk students.

Conceptions of an Academic Program

A recent essay by Eugene Campbell, Superintendent of Newark's Schools eloquently addresses the need for academic kindergarten programs for disadvantaged students:

> "Middle class parents are able to enhance their children's development because of their own educational background and their economic ability to provide not only the necessities of life, but also such amenities as cultural outings, educational toys, and travel experiences. Regardless of the age of school entry, their children thus have a competitive edge. They are 'readier' for school because they have been 'pushed' at home; their parents expect academic rigor at school.
>
> Those of us who cling to the hope that education can promote equity support public preschool education policies that give similar advantages to children who do not have alternative resources.

> If such a policy means that administrators and teachers, rather than parents, must do the 'pushing', then so they should. If it means that the content of today's prekindergarten or kindergarten curriculum must be more rigourous than yesterday's, for all children, then so it should."

The academic kindergarten program to be described in this chapter was implemented in 12 low-income communities between 1968 and 1985 as part of Project Follow Through, a large-scale program for economically disadvantaged students. In the views of the developers of the program, a major function of kindergarten for disadvantaged students was to deal effectively with the dramatic, often difficult transition between preschool and first grade.

Carnine, Carnine, Karp and Weisberg (1988) describe the transition this way: "The preschool for four-year olds is clearly child centered. The children are normally given wide latitude in choosing what to do, and experience almost complete acceptance of their responses. A picture of scribbles is acknowledged for the pretty colors, a jangle of toy cymbals for the making of music. The goals are primarily participation and expression . . . The child is a success. An important transition from home to school has begun.

"In contrast, first grade is content centered. Reading, language arts, and mathematics . . . dictate the schedule. Choices are curtailed. Mere participation and expression are no longer sufficient to gain praise. A narrow range of responses is acceptable. Reading the sentence 'I saw a cat' as 'Once upon a time' won't do; nor will

calling a six 'nine' . . . Many of these children feel their success and confidence slowly erode. " (pp.2-3).

Perhaps the central image that guided the conceptualization of the academic kindergartens in Project Follow Through was the image of students learning new concepts each day, but in such a way that they experienced unremitting success. Instructional sequences were designed to match the attention span of a typical 5-year-old. Symbols and other concepts were introduced at a much slower rate and in a much more interactive fashion than the readiness series that accompany conventional basal reading series (Sprick, 1986). Much of the academic content of the program was taught through games.

Components of the Academic Kindergarten in Project Follow Through

A good deal of the kindergarten day (approximately 90 minutes to 2 hours) was devoted to building academic skills. For the reading, math, and language sessions, students worked in groups of 6 to 10 with a teacher or instructional aide. Each of these sessions lasted for 20-30 minutes. Typically, each session consisted of 6 or 7 brief three minute teaching sequences that covered a wide range of activities. These sequences accommodated the relatively short attention span of most of the students and enabled them to participate in a variety of different activities in the course of one

lesson. Because teachers also moved quickly from one activity to the next, student interest and motivation typically remained high during the 20-minute lesson (Gersten, Carnine, & Williams, 1982). Supplementary gamelike activities were integrated with the content of the small group sessions, and served a very important purpose: additional practice and mastery of key concepts that students were acquiring. Because games and instruction were interwoven and so closely aligned, students had the opportunity not only to practice key concepts but to enjoy doing so.

Students spent about 30 minutes a day in academically-related independent activities. They practiced writing letters and numbers, they colored in pictures related to the stories they had read, and, as the year progressed, they wrote words and sentences and answered simple comprehension questions about the stories they read.

As they learned how to read, the children devoted time to independent silent reading. A unique feature of the reading program was the use of short, paperback story books that students could read independently after only a few months of school. These books contained simple, often humorous stories written with words the children could read. Students took these books home with them and could read them to parents, brothers, and sisters. Thus, from the very beginning, children learned that the purpose of learning to read was to read and enjoy stories.

The enjoyment and understanding of stories were a big part of the kindergarten program. Teachers read out loud to students daily. In addition, a home reading program provided parents with a variety of books to read to their children; teachers actively encouraged them to do so.

The oral language program was designed to build students' understanding of concepts and to help them describe the world around them. Students learned about colors, shapes, and time. They practiced describing objects and describing relationships. The listening comprehension component of this program is seen as the basis for subsequent work in reading comprehension.

The reading curriculum utilized a synthetic phonics approach, breaking all skills into small steps with repeated practice. The sequence of introducing new letter-sound correspondences was carefully controlled according to research-based principles of curriculum design. For example, sounds or symbols that students were likely to confuse, such as b and d , or i and e, were separated by several weeks (Carnine, 1981). The rate at which new sounds were introduced was much slower than the readiness level of the major basal series. Students were allowed as much time as necessary to learn each new sound before the next was introduced. Students were systematically taught how to blend sounds before they were asked to sound out simple words. Within several weeks,

students began reading simple stories and answering questions about these stories.

Most of our discussion has focused on the relatively unique nature of the academic portion of the kindergarten program. The remainder of the full day program consisted of more traditional kindergarten activities - play with dolls, puppets, blocks, and board games; art projects; music; and projects related to holidays and social studies. This part of the day afforded students with an array of informal social interactions with the teacher and each other.

Relevant Research

A major independent evaluation of the Direct Instruction Follow Through Project was conducted for the U.S. Office of Education by Abt Associates and the Stanford Research Institute (SRI). These results have been extensively reported (Becker et al., 1981; Stebbins, St. Pierre, Proper,Anderson, & Cerva,1977), and are briefly summarized here.

Academic Benefits: The East St. Louis Evaluation. The evaluation intensively examined the academic progress of two cohorts of low-income minority children. Although both cohorts of Follow Through students began school in the fall of 1970, one cohort began kindergarten and the other first grade, with no previous kindergarten experience. For each cohort, the Abt evaluation included a

demographically similar comparison group which received the district's traditional curriculum. One comparison group began kindergarten in 1970; the other began first grade in 1970 (with no kindergarten experience). Essentially, the evaluation allowed for two important comparisons: a) whether four years of a Direct Instruction academic K--3 program led to superior achievement than four years of the districts traditional K--3 program, and (b) whether the year of academic kindergarten enhanced achievement.

Demographics and Entry Level Skills. The demographics (gender, family income, mother's education, ethnicity) for the Direct Instruction and comparison groups were quite similar in both cohorts of East St. Louis students. All of the Direct Instruction and comparison students who received only a first-through-third-grade program (i.e. no kindergarten experience) were Black. Eighty-nine percent of the Direct Instruction students in the K-3 program were Black, and 76% of the comparison students were Black. Approximately 65% of the families in both samples had female heads of households. Over 70% of the students' families were receiving welfare (AFDC).

Pretest data on the Wide Range Achievement Test (Jastak & Jastak, 1965) showed that the comparison students began with slightly higher academic skills than the Direct Instruction groups although the difference was minor. To control for this initial, small

difference in entry skills, the researchers utilized analysis of covariance.

Academic Achievement at End of Third Grade

In the spring of third grade, both cohorts were administered all subtests of the Metropolitan Achievement Test (Durost, Bixler, Wrightstone, Prescott, & Balow, 1970). The test is a fairly comprehensive measure of most facets of academic achievement.

The upper portion of Table 1 presents the results of the evaluation for students who received Direct Instruction in first through third grade only (the No-Kindergarten Direct Instruction group) . The lower portion of Table 1 presents analogous data for the sample of students receiving the academic Direct Instruction program beginning in kindergarten. As Table 1 (top) illustrates, the first- through third-grade Direct Instruction program was more effective than the district's program in the areas of mathematics and language. Students in the Direct Instruction program were at or above grade level in Math Concepts and Math Problem Solving, while the local comparison students were at the twenty-second and eighteenth percentiles. Although the 3-year students often performed better than their peers in the district in reading comprehension and vocabulary (word knowledge), they were well below grade level, and no significant effect was found.

Insert Table 1 about here

A different picture emerges in the data presented at the bottom of Table 1, the achievement of students who had the additional year of academic kindergarten. Here the Direct Instruction sample consistently outperformed the comparison sample, in reading as well as mathematics and language. All of these differences are statistically significant (except spelling).

Insert Figure 1 about here

What is particularly impressive is that the low income students who experienced the year of academic kindergarten were at or near the national median (grade level) in all academic measures (see Table 1 and Figure 1). In contrast, students who had a Direct Instruction program in first through third grade, but no academic kindergarten, were at only the thirty-sixth percentile in math and the twenty-eighth percentile in reading. These data clearly indicate the benefits of an additional year of well-designed academic kindergarten.

Self-Concept. As a supplement to the evaluation, the effects of the Follow Through program on self-concept were also assessed. Obviously, self-concept is a good deal more difficult to measure than achievement. The Coopersmith (1967) Self-Concept Inventory was administered individually to each student at the end of the third grade. Results on the Coopersmith indicated statistically and educational significant positive effects for both groups of students who received Direct Instruction. As with achievement, the magnitude of the treatment effect was stronger for students who had the extra year of academic kindergarten, .46 standard deviation units rather than .30 standard deviation units.

Long-Term Academic Benefits. Many argue that, although academic programs for young disadvantaged students may present some immediate benefits, the long term effects may be detrimental (Schweinhart, Weikart, & Larner, 1986; Katz, 1988). They argue that when students leave the world of carefully sequenced lessons and consistent teacher guidance and feedback and deal with the harsh realities of the intermediate grades and middle school, they will not be able to learn independently. Furthermore, some feel that the pressure put upon the students at an early age will have detrimental effects on their social lives.

The only way to study this issue is through longitudinal research that examines long term effects of the program. The

longitudinal study of the high school careers of the former East St. Louis Direct Instruction students allowed such an examination

Follow Through students who received either the 3-year Direct Instruction program (that began in first grade) or the 4-year program (that included an academic kindergarten) were tested in reading, math, and language on the California Achievement Test at the end of ninth grade in the spring of 1979 and 1980. Again, their performance was contrasted with that of demographically similar students who received the district's typical curriculum in the early grades. Comparison schools were matched on the basis of percentage of students from homes receiving AFDC (Welfare), ethnicity and student mobility. (See Gersten, Carnine, Keating, and Tomsic, 1984 and Gersten and Keating, 1987 for technical details.)

In these analyses, mean standard scores (rather than raw scores) were used, a more accurate procedure than that employed by Abt Associates. Table 2 presents percentiles, grade equivalent scores and significance values.

Insert Table 2 about here

As Table 2 illustrates, in general, Direct Instruction Follow Through students out-performed comparison students on all

achievement measures 6 years after the program ended. (The only nonsignificant effect is Math for the first grade cohort.) Although both cohorts of Direct Instruction students performed significantly better than the comparison groups in reading, students who received the year of academic kindergarten demonstrated stronger effects. These students' achievement was at the fortieth percentile on the California Achievement Test, within 10 percentile points of their middle- income peers. The students without kindergarten, though reading at a higher level than the comparison group, scored at only the twenty-third percentile.

The same pattern persists in language. Again, although the Direct Instruction students in the first-through third-grade program performed significantly better than the comparison sample (forty-second versus thirty-third percentiles), they are considerably below the level of the students who received kindergarten. Effects are less dramatic in math. The cohort of students who experienced academic kindergarten performed significantly higher than the comparison group, while no effect was found for the 3-year students. The overall mathematics performance is substantially lower than that in reading or language.

It is clear that in each area of achievement, stronger effects were found for the students who experienced academic kindergarten than those who only began an academic program in grade one.

Factors Contributing to Program Success

Some reasonable hypotheses can be developed concerning led to the success of the program described. In the following section, we articulate what seem the most plausible reasons success and discuss implications for those considering implementing academic kindergarten programs.

The curriculum used in the academic kindergarten was in n a "watered down" first grade reading program but rather a proc uniquely developed for kindergarten. The sounding out and blen strategies practiced in kindergarten were the basis for more sophisticated word attack strategies taught in first grade. Th practice in aural comprehension of a wide range of language concepts served as a basis for the reading comprehension mat in the first- and second-grade curricula. Similarly, major emp was given to teaching preskills necessary for first-and seconc grade arithmetic systematically. Students learned what the ec and addition signs meant on both the concrete and conceptual l Mastery of these concepts in kindergarten served as a basis fo students' understanding of the various algorithms and strategi presented in first and second grade.

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A Gradual but Systematic Transition

The program envisioned kindergarten as a gradual but systematic transition between the child-centered, accepting atmosphere of most preschools and day care centers and the structured environment of most first grades. Beginning in the first weeks of school, teachers began, in a step-by-step fashion to a) build the skills and knowledge necessary for success in first grade, and b) help the students gradually increase their attention span and their ability to focus on academic material presented in small-group instruction.

Each academic or cognitive objective was taught in brief 2-to 5-min. segments, aimed to match the 5-year- olds' attention span. As the year progressed, the length of these segments increased. However, the program always mixed the more serious aspects of learning with games. A major goal was to ensure that students' first exposure to academic learning was fun.

Unique Features of the Curriculum

There were several important underlying features of the curriculum that should be made explicit so that they can serve as criteria for evaluating or adapting curricula that might be used in kindergartens for "at-risk" students. The rate of presentation of new content was slower than is typically found in basal readiness

series (Kameenui, 1987; Sprick, 1986). Many basal readiness series introduce sound-letter correspondences at three to five times the rate of the curriculum used in this kindergarten program. This can lead to frustration, as was evident in observations of children in low-achieving schools (Gersten, Davis, & Green, 1986).

A second unique feature of the curriculum which led to the success of the kindergarten program was the provision of an adequate number of examples of each concept and a large amount of practice and review of each new concept. A recent review of traditional basal language programs revealed that they typically provide only a few examples of each concept and review new material only three or four times during the year (Kameenuii, 1987). Early childhood educators such as Katz (1988) urge teachers to use only small numbers of naturally occurring examples of a concept. In contrast, the curriculum used in this program provided up to 20 examples of each new concept and briefly reviewed all new material on a daily basis for weeks, until students had mastered it. If students did not display mastery, additional brief review segments were added to lessons.

Perhaps the most important component of this curriculum was that it was designed so that students succeeded. The carefully sequenced instruction and the amount of practice, interaction, and praise all created numerous successful academic experiences for

these kindergartners. Interviews with the parents of students in one of the academic kindergarten programs revealed that none of the parents reported that their children experienced undue stress (Gersten, True, & Moore, 1987).

Highly Interactive Teaching Strategies

A final factor that appears to account for the success of the program was that the academic lessons were highly interactive. Worksheets comprised a small portion of each child's day. Most of the time was spent in small- or large-group instruction. Reticent students who lacked the self-confidence to volunteer answers were always given an opportunity to respond by the use of choral as well as individual turns. Typically students were asked to respond between 9 and 12 times per minute. (Gersten, 1984). Rather than listen to a teacher rhyme words for a few minutes for a few days, all students in these kindergartens practiced rhyming until they had mastered the skill and could apply it to beginning reading words. The instruction involved active responding by the students. The average observed success level of the students during the small group sessions was between 80 and 90% (Gersten, Carnine, & Williams, 1982).

Teachers utilized most of the principles that researchers have found to be effective with low-income students in the elementary

grades (Brophy & Good, 1986). However, these principles were adapted to meet the needs of 5-year-olds. As the Brophy-Good research findings suggest, the lessons had clear academic objectives, reviewed relevant preskills, and had students practice until mastery. Explanations were clear and consistent. Students were asked many questions with right/wrong answers and were provided with immediate, clear feedback about the accuracy of their answers.

Development of New Teaching Strategies: Teacher Training and Evolution of Attutudes.

Implementation of such a program can be difficult; intensive staff development activities are required. In Follow Through, this involved practice and role-play sessions as well as classroom observations and feedback sessions by mentor teachers or consultants.

Initially some kindergarten teachers resisted this approach, feeling that too much pressure was being put on the students. This initial reaction has occurred often. However, in a case study of the evolution of teachers' attitudes and perceptions, the researchers found that the attitudes of most of the "resistant" kindergarten teachers shifted as the year progressed and they saw this new

approach to teaching kindergartners succeed with their 5 1/2-year-olds (Gersten, Carnine, Zoref, & Cronin, 1986).

Conclusions

The results of these studies indicate that reading *can* be taught to virtually all kindergarten students, regardless of their scores on readiness tests or limitations of their home backgrounds. Teaching reading in a developmentally appropriate fashion to these students is a challenge--but it can lead to enduring benefits to the students involved.

The dramatic success of the academic kindergarten program in the East St. Louis and the New York Projects (Meyer et al, 1983; Meyer, 1984) gives an inkling of what can be accomplished with an academic curriculum that is based on research-based principles of effective teaching, yet is sensitive to the needs of 5-year-olds.

The programs implemented in both of these communities attempted to integrate academic activities with more informal child-centered activities. There is an increasing need to create this sort of integrated experience. Often, it seems as if the world of early childhood education is divided into two irreconcilable camps--those with a developmental approach and those with a more "academic" approach. These results provide a glimmering of what can be done when an attempt at integration of the two approaches is

made. They strongly suggest that almost all low-income kindergarten students can be taught to read in a developmentally appropriate fashion.

Note

1. Portions of this chapter are adapted from an article entitled "Effectiveness of a Direct-Instruction Academic Kindergarten for Low Income Students," published in Elementary School Journal, November, 1988.

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Table 1 End of Third Grade Achievement: Mean Raw Scores (and Percentile Equivalents) on the Metropolitan Achievement Test for Students in East St. Louis Direct Instruction and Comparison Programs[a]

1st-Through-3rd-Grade (No Kindergarten) Programs (1970 1973)

	Direct Instruction (N = 96)			Comparison Group (N = 45)			
	%ile	M	SD	%ile	M	SD	p
Total Reading	28th	37.3	13.8	28th	37.0	15.4	NS
Word Knowledge	30th	20.9	8.7	30th	21.1	9.6	NS
Reading (Comp.)	28th	16.6	5.8	26th	15.9	6.9	NS
Language	56th	28.1	9.8	20th	14.6	5.7	.01
Spelling	38th	18.0	12.0	40th	19.4	11.2	NS
Total Math	36th	54.5	20.2	16th	40.2	12.6	.01
Computation	74th	22.7	7.4	17th	14.8	4.5	.01
Math Concepts	62nd	19.9	7.1	22nd	14.4	5.7	.01
Prob. Solving	42nd	15.8	7.3	18th	11.0	4.6	.01

(Table continues)

Table 1 (con't.)

Kindergarten Through Third-Grade Programs (1970-1974)

	Direct Instruction (N = 56)			Comparison Group (N = 45)			
	%ile	M	SD	%ile	M	SD	p
Total Reading	43rd	49.2	17.1	37th	44.6	16.5	.01
Word Knowledge	41st	27.7	9.9	37th	25.3	9.6	.01
Reading (Comp.)	47th	21.5	7.8	39th	19.3	7.6	.01
Language	68th	32.1	9.8	52nd	19.1	7.3	.01
Spelling	44th	23.2	11.3	44th	21.4	11.4	.01
Total Math	56th	68.2	18.7	26th	46.9	21.4	.01
Math Computation	77th	28.8	6.5	36th	19.4	7.2	.01
Math Concepts	49th	21.8	6.9	23rd	14.8	8.4	.01
Prob. Solving	47th	17.7	7.0	25th	12.8	9.2	.01

a. Adapted from Stebbins et al, (1977) Volume IV-D

Table 2. East St. Louis Grade 9 CAT (California Achievement Test) Scores for Direct Instruction and Comparison Students

No Kindergarten

	Direct Instruction (N = 59)		Comparison (N = 139)		
	G.E.	%ile	G.E.	%ile	t
Reading	7.4	23	6.9	18	2.01*
Language	8.9	42	8.1	33	1.72*
Math	7.4	19	7.2	18	.76

Kindergarten

	Direct Instruction (N = 54)		Comparison (N = 121)		
	G.E.	%ile	G.E.	%ile	t
Reading	8.8	40	7.6	26	2.99**
Language	10.2	59	8.6	39	3.12**
Math	8.3	30	7.5	20	2.75**

* P < .05

** P < .01

Figure 1. Achievement Levels of Students in Total Reading and Total Mathematics in Percentiles.